

2017-06-13, Šilheřovice (Czech Republic)

2nd Interactive Professional Conference of FUTURA project



The FUTURA project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 700985.

Agenda:

- 11:00 – 11:30 Welcome speech of the project manager
- 11:30 – 12:00 Presentation of the FUTURA project (report on progress, objectives)
- 12:00 – 12:30 Presentation of project partners
- 12:30 – 12:45 Press conference
- 12:45 – 13:30 Discussion
- 13:30 – 14:00 Snacks and coffee

FUTURA

„FUTUre RAIl freight transport:



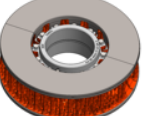
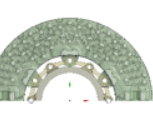

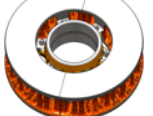
Cost-effective, safe, quiet and green



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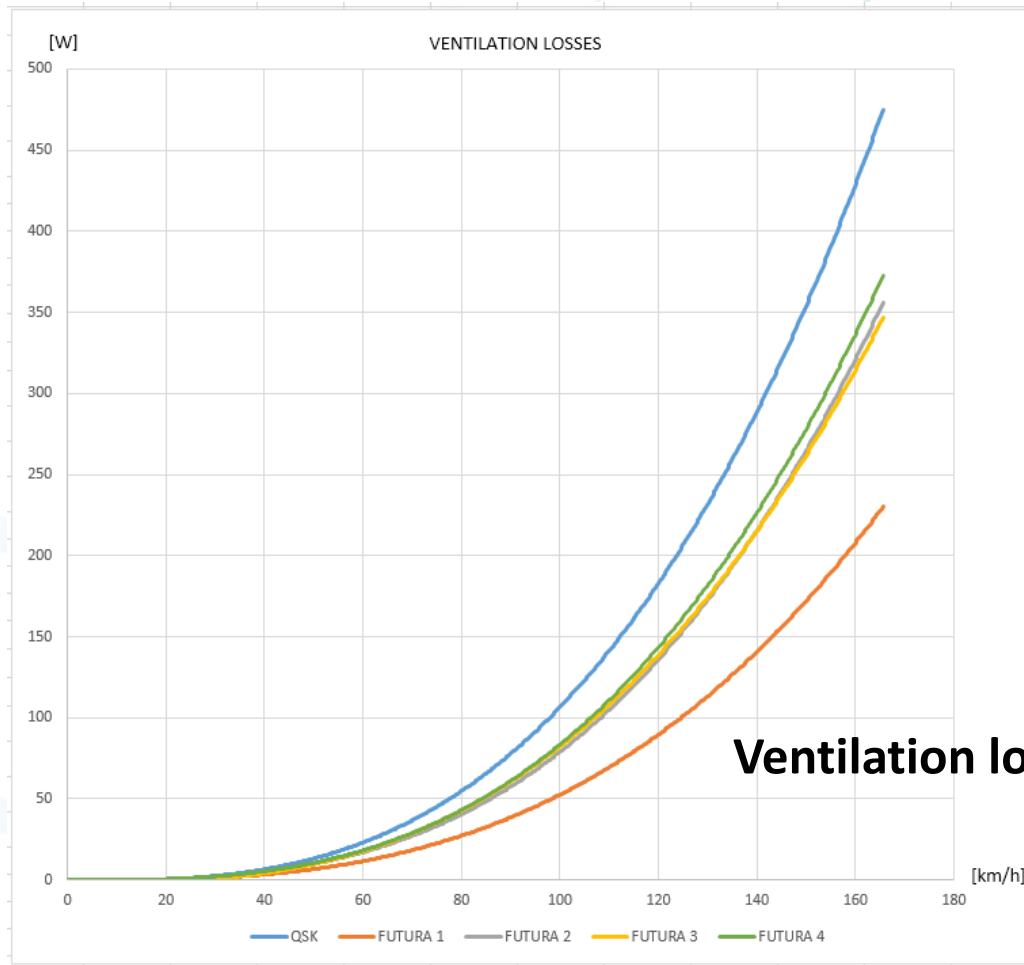
REPORT ON PROGRESS

- In a period of M2-M15 of the project, six prototypes of DRFB discs were designed.
- Three of them were successfully made, and reached certain level of compliance against requirements.
- Two of them were abandoned in design phase.
- Sixth prototype is still in FEA verification phase.

Prototype	Picture	Design	FEM Calculation	Production	Laboratory test	Real environment test	Note
1c		OK	OK	OK	OK	OK	-8.4% mass -11% ventilation losses
1.1		NOK	Not performed	Not performed	Not performed	Not performed	Design abandoned Impossible to produce
2		OK	OK	OK	OK	Not performed	-13.7% mass -57% ventilation losses
2.1		OK	NOK	Not performed	Not performed	Not performed	Design abandoned High stresses on the crown and ring
3		OK	OK	Not yet performed	Not yet performed	Not yet performed	-18.6% mass -27% ventilation losses
4		OK	Partially performed	Not yet performed	Not yet performed	Not yet performed	-20.7% mass

REPORT ON PROGRESS

- Graphs of optimization results



Ventilation losses (Air resistance)



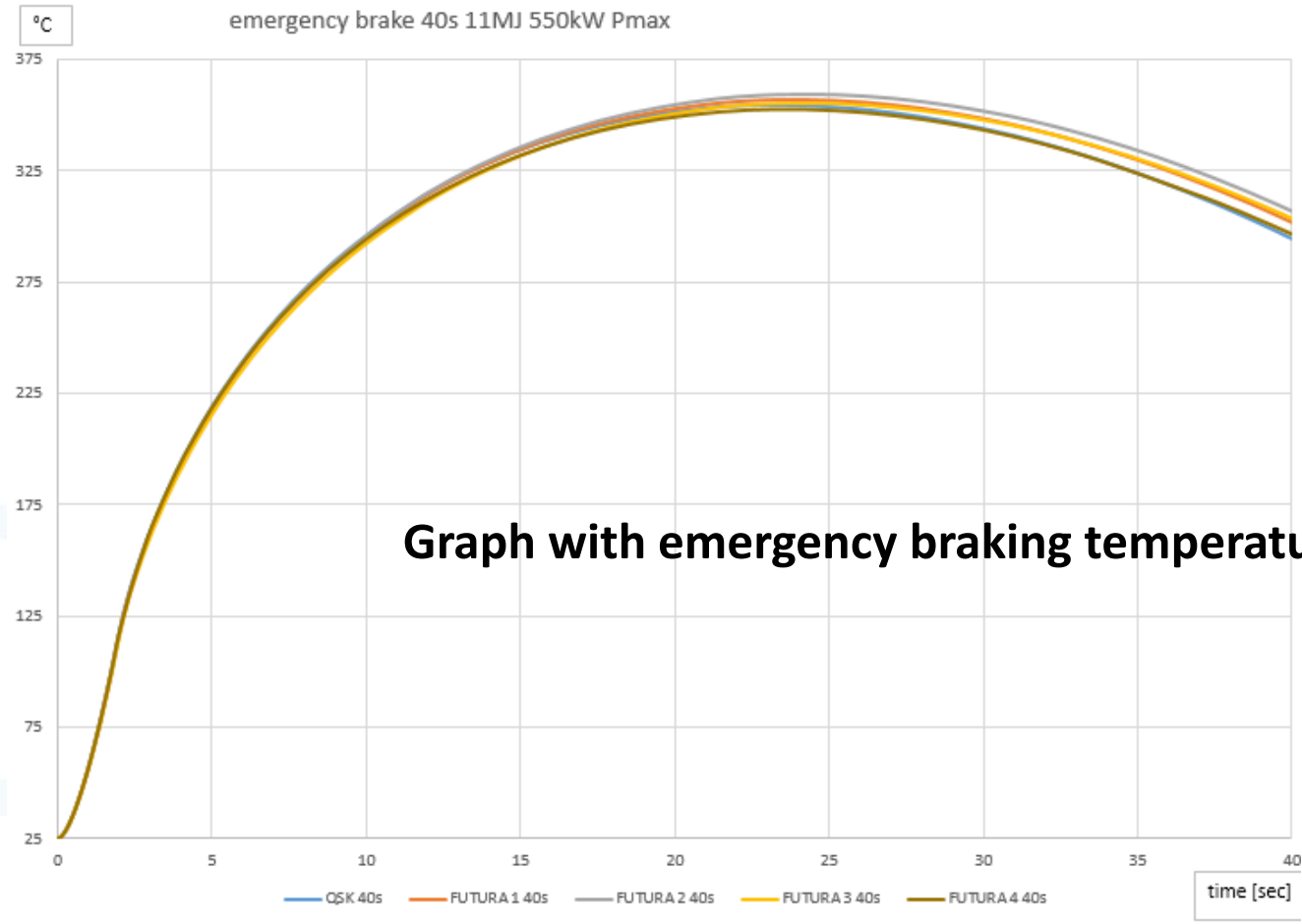
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REPORT ON PROGRESS

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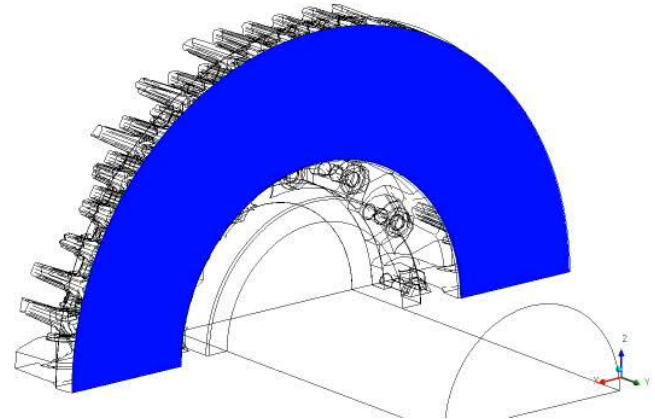
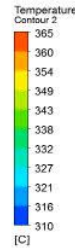
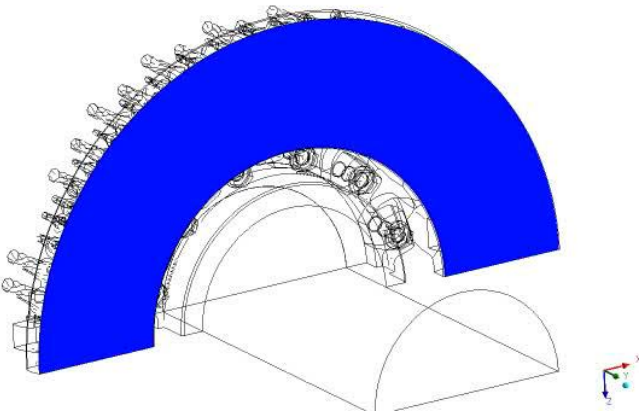
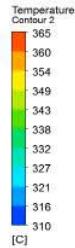
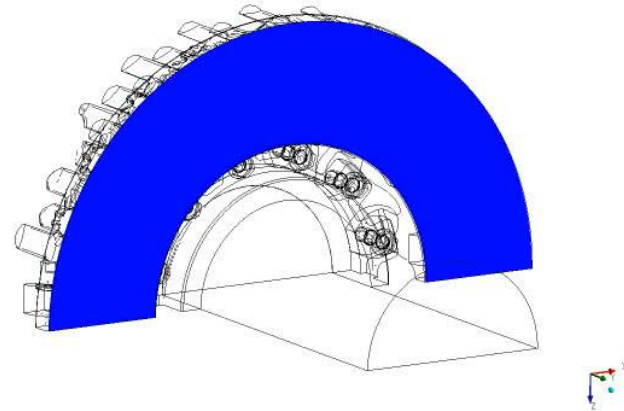
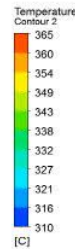
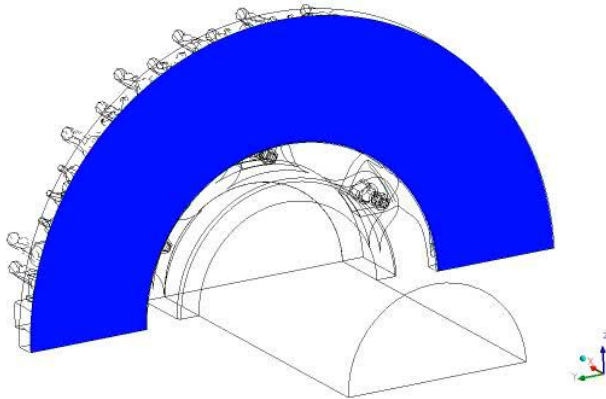
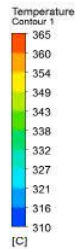
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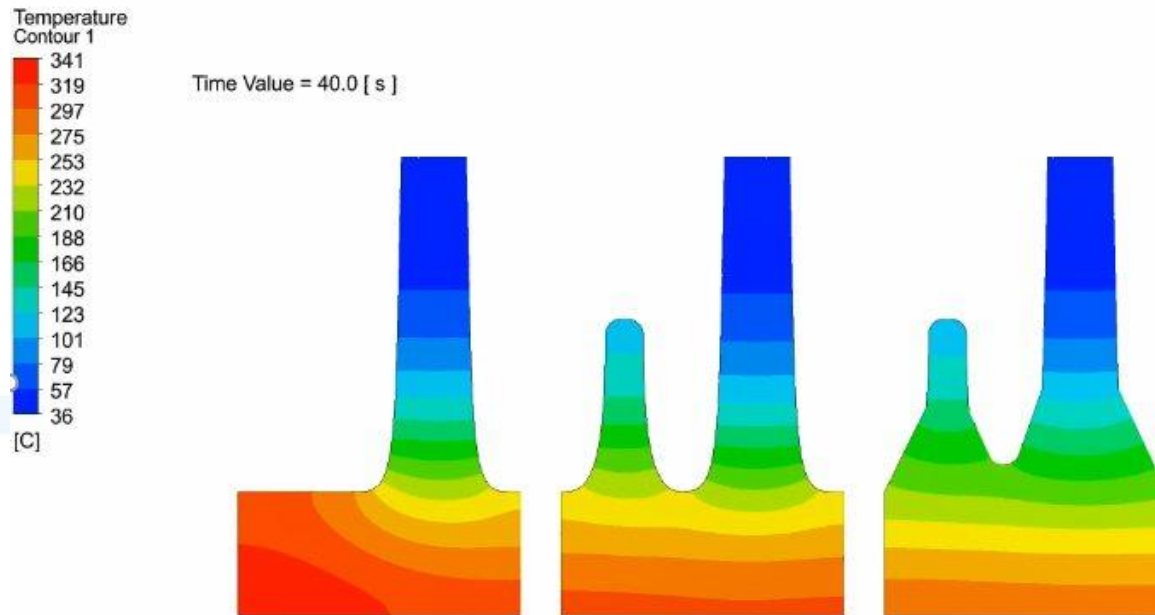
REPORT ON PROGRESS

- Comparison of temperatures for different designs



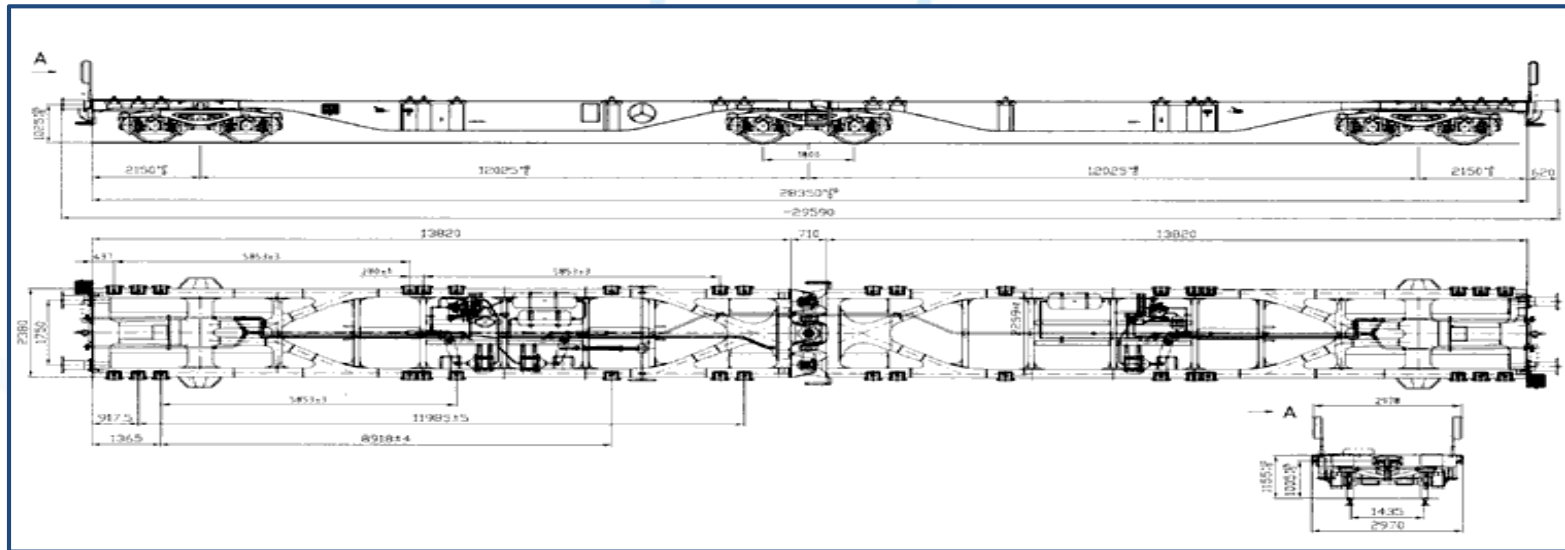
REPORT ON PROGRESS

- Influence of cooling shape of DRFB disc crown on thermal performance



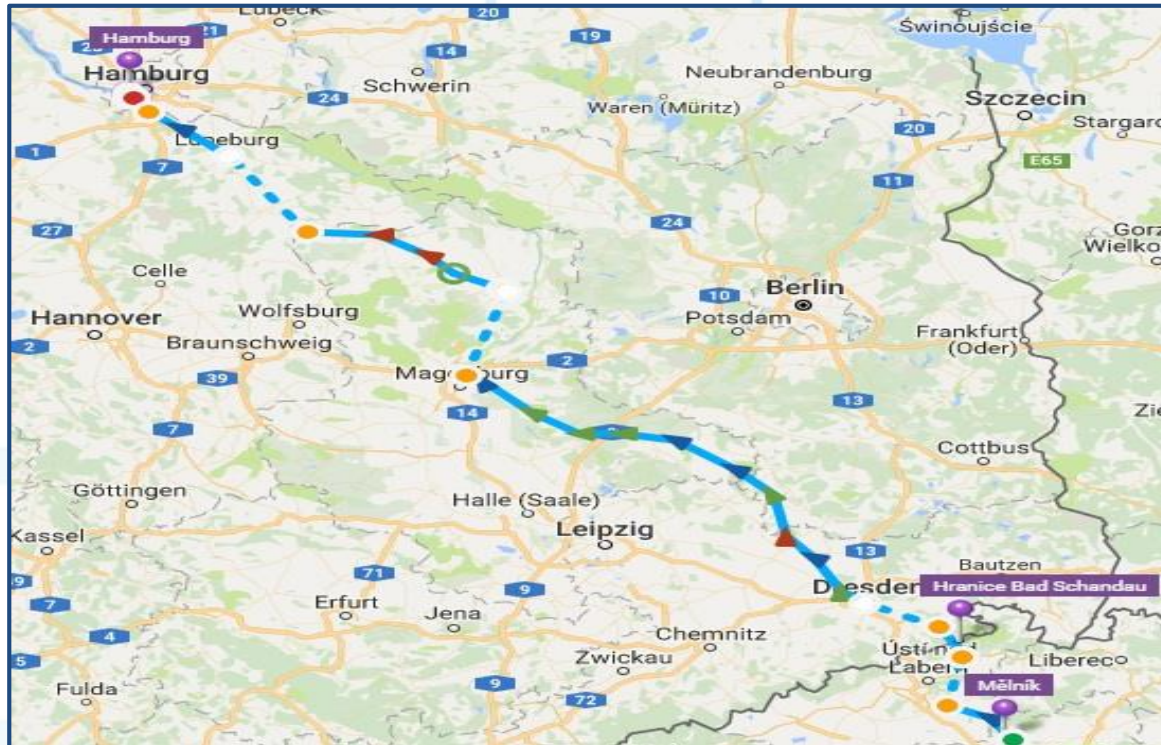
REPORT ON PROGRESS

- DRFB disc is mounted on six axle freight wagon Sggrss 80 for purpose of real environment test.



REPORT ON PROGRESS

- Wagon is running on Mělník – Hamburg relation



REPORT ON PROGRESS

Current situation of reached specific objectives:

- 20.7% lower mass
- 11% reduction in braking distance and consequently a higher safety
- 10% of vibration level
- 10% greater efficiency
- 5% longer life-cycle (estimated, need more information from real environment test)
- 55% reduction of maintenance costs
- 4dBA lower noise in laboratory tests
- 10dBA lower noise in real environment test in comparison to K-block)

EXPECTED IMPACTS OF FUTURA PROJECT

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- A significantly higher safety and security in RFT (7% less accidents, 12% less damage of the freight (failure of brake system caused by overheating))
- Improving cost-effectiveness of rail transport
- Reduced level of noise
- Positive environmental impact
- Increase of private sector's investments and innovation activities

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THANK YOU !



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